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PTO/SB/61 (11-03)

Approved for use through 07/31/2008. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED UNAVOIDABLY UNDER 37 CFR 1.137(a)	Docket Number (Optional)
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DEC 30 2003

OFFICE OF PETITIONS

First Named Inventor: David S. Gilbert, Jr. Art Unit: 3723
Application Number: 09/809/709 Examiner: Smith, James G.
Filed: 3/15/2001
Title: Slide Lock Wrench

Attention: Office of Petitions
Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

NOTE: If information or assistance is needed in completing this form, please contact
Petitions Information at (703) 305-9382.

The above-identified application became abandoned for failure to file a timely and proper reply to a notice or action by the United States Patent and Trademark Office. The date of abandonment is the day after the expiration date of the period set for reply in the Office notice or action plus any extensions of time actually obtained.

APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION.

NOTE: A grantable petition requires the following items:

- (1) Petition fee.
- (2) Reply and/or issue fee.
- (3) Terminal disclaimer with disclaimer fee-required for all utility and plant applications filed before June 8, 1995, and for all design applications; and
- (4) Adequate showing of the cause of unavoidable delay.

1. Petition fee

☐ Small entity - fee \$ _____ (37 CFR 1.17(l)). Applicant claims small entity status.
See 37 CFR 1.27.

☐ Other than small entity - fee \$ _____ (37 CFR 1.17(l)).

2. Reply and/or fee

A. The reply and/or fee to the above-noted Office action in the form of
A type written reply (identify the type of reply):

- ☒ has been filed previously on Patent application 09/809/709
☒ is enclosed herewith.

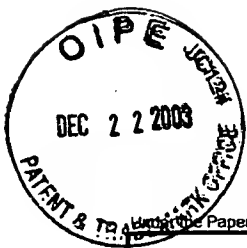
B. The issue fee of \$ _____

- ☐ has been filed previously on _____
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[Page 1 of 3]

This collection of information is required by 37 CFR 1.137(a). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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OFFICE OF PETITIONS

**PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED
UNAVOIDABLY UNDER 37 CFR 1.137(a)****3. Terminal disclaimer with disclaimer fee**

- ☐ Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.
- ☐ A terminal disclaimer (and disclaimer fee (37 CFR 1.20(d)) of \$ _____ for a small entity or \$ _____ for other than a small entity) disclaiming the required period of time is enclosed herewith (see PTO/SB/63).

4. An adequate showing of the cause of the delay, and that the entire delay in filing the required reply from the due date for the reply until the filing of a grantable petition under 37 CFR 1.137(a) was unavoidable, is enclosed.

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12/22/2003

Date

Signature

412- 751- 6545

Telephone Number

David S. Gilbert, Jr.

Typed or printed name

Registration Number, if applicable

Address

Address

- Enclosure ☐ Fee Payment
- ☒ Reply
- ☐ Terminal Disclaimer Form
- ☒ Additional sheets containing statements establishing unavoidable delay
- ☒ Copy of U.S. Express Mail Receipt

CERTIFICATE OF MAILING OR TRANSMISSION (37 CFR 1.8(a))

I hereby certify that this correspondence is being:

- ☐ deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
- ☐ transmitted by facsimile on the date shown below to the United States Patent and Trademark Office at (703) 872-9306.

12/22/2003

Date

Signature

David S. Gilbert, Jr.

Typed or printed name of person signing certificate



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PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED
UNAVOIDABLY UNDER 37 CFR 1.137(a)

NOTE: The following showing of the cause of unavoidable delay must be signed by all applicants or by any other party who is presenting statements concerning the cause of delay.

12/22/2003

Date

Signature

David S. Gilbert, Jr.

Registration Number, if applicable

Typed or printed name

(In the space provided below, please explain in detail the reasons for the delay in filing a proper reply.)

Mr. James G. Smith:

Dear Mr. Smith,

In accordance with our telephone conversation on Thursday, December 18, 2003 regarding your office not receiving my reply to your Office Action communication dated 12/13/2002, I have enclosed copies of all the papers sent to your office by me on 4/09/2003 via US Express Mail and a copy of the US Express Mail Receipt which is enclosed.

Since your office did not receive my transmittal sent by me by US Express Mail on 4/09/2003, the US Postal Service must have lost the express mail package or they would have delivered it to your office or at least returned it to me since my return address and telephone number are on the receipt and likewise on the address label affixed to the express mail envelope. The express mail envelope and its contents were processed and mailed at my local US Post Office (15135) by their clerk identified on the express mail receipt.

Additionally, I did not contact you to learn what progress your office was making to resolve the Final Action in your 12/13/2002 communication because I felt you were very busy and I did not want to disturb you.

Hopefully you can now review the enclosed documents for a favorable decision on my behalf. I am still able to travel to your office to discuss any corrections that may be required after your review of the enclosed documents to make my invention patentable and better protected.

Thank you for your consideration.

Very truly yours,

David S. Gilbert, Jr.

(Please attach additional sheets if additional space is needed.)



SLIDE LOCK WRENCH

BACKGROUND OF THE INVENTION

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OFFICE OF PETITIONS

1. Field of the Invention

This invention relates to wrenches and, more particularly, to wrenches which
5 are usable to handle various types and sizes of hexagonal, square and round work pieces, particularly, nuts, bolts, pipes and pipe fittings.

2. Description of the Prior Art

A variety of hand tools have been utilized with the installation of nuts, bolts, pipes and pipe fittings. Wrench-type and plier-type hand tools are commonly used to
10 handle nuts, bolts, pipes and pipe fittings. See, for example, the tools shown in United States Patents Nos. 994,070 ; 1,027,203 ; 1,199,806 ; 2,592,927 ; 3,968,708 ; 3,955,450 ; 2,882,774 ; 993,504 ; 1,586,513 ; 4,616,536 ; and 1,396,576.

However, the use of these prior art tools to install or remove nuts, bolts, pipes and pipe fittings is disadvantageous for numerous reasons. First, the opposing jaw
15 areas allow a loose application at only two surfaces of the nuts and bolts of various sizes and shapes. In addition, these tools do not provide a uniform holding grip on the nuts or bolts. Further, these tools require a laborious task of repetitious mechanical adjustment and employing the use of various thumb and finger type devices to move the jaws of the tools to encompass the nuts and bolts. The same
20 laborious task of repetitious mechanical adjustment is required to open the jaws to receive the nuts and bolts of various sizes and shapes. In the installation or removal of pipes and pipe fittings, the tools presently in use also require a laborious task of repetitious mechanical adjustment, employing the use of various thumb and finger type devices, to move the jaws of the tools to grasp the various sizes of pipes and
25 pipe fittings. The same laborious task of repetitious mechanical adjustment is also required to open the jaws to receive the pipes and pipe fittings of various sizes and shapes.

Accordingly, it is the object of the present invention to provide wrenches for handling nuts, bolts, pipes and pipe fittings, which can be used to tighten or loosen the nuts, bolts, pipes and pipe fittings, with a uniform holding grip, without the laborious task of repetitious mechanical adjustment. It is another object of the invention to provide wrenches which can be easily used in a confined environment without damage to the nuts, bolts, pipes and pipe fittings themselves.

SUMMARY OF THE INVENTION

The present invention provides a wrench hand tool for the installation and removal of nuts, bolts, pipes, pipe fittings, rods and bars, with a uniform positive gripping action, without the laborious task of a repetitious mechanical adjustment as required by the wrench-type and plier-type hand tools of prior art.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of the wrench according to the present invention;

Fig. 2 is a perspective view of a second embodiment of the wrench according to the present invention;

Fig. 3 is a front view of the wrench shown in Fig. 1 grasping a hexagon shaped nut;

Fig. 4 is a right side view of the wrench shown in Fig. 3;

Fig. 5 is a left side view of the wrench shown in Fig. 3;

Fig. 6 is a front view of the wrench as shown in Fig. 2 grasping a circular object;

Fig. 7 is a right side view of the wrench shown in Fig. 6;

Fig. 8 is a left side view of the wrench shown in Fig. 6;

Fig. 9 is a front view of a third embodiment of the wrench, grasping a hexagon shaped nut, according to the present invention;

Fig. 10 is a right side view of the wrench shown in Fig. 9;

Fig. 11 is a left side view of the wrench shown in Fig. 9;

Fig. 12 is a front view of a fourth embodiment of the wrench, grasping a hexagon shaped nut, according to the present invention;

Fig. 13 is a right side view of the wrench shown in Fig. 12;

Fig. 14 is a left side view of the wrench shown in Fig. 12;

Fig. 15 is a top view of the wrench shown in Fig. 3;

Fig. 16 is a bottom view of the wrench shown in Fig. 3;

Fig. 17 is a top view of the wrench shown in Fig. 6;

Fig. 18 is a bottom view of the wrench shown in Fig. 6;

Fig. 19 is a top view of the wrench shown in Fig. 9;

10 Fig. 20 is a bottom view of the wrench shown in Fig. 9;

Fig. 21 is a top view of the wrench shown in Fig. 12;

Fig. 22 is a bottom view of the wrench shown in Fig. 12;

Fig. 23 is a sectional view of Fig. 24;

Fig. 24 is a left side view of Fig. 23;

15 Fig. 25 is a sectional view of Fig. 26;

Fig. 26 is a left side view of Fig. 25;

Fig. 27 is a sectional view of Fig. 3;

Fig. 28 is a sectional view of Fig. 6;

Fig. 29 is an enlarged view of Fig. 27 and Fig. 28;

20 Fig. 30 displays hexagon shaped nuts and pipe fittings of several sizes;

Fig. 31 displays bolts and pipes of several sizes.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to Figs. 1 thru 31, there is shown a wrench 1 for handling hex angular nuts 30 and hex angular bolts 31, as shown in Figs. 1, 3, 4, 5, 15, 16, 23, 24, 25 27, 29, 30 and 31. The wrench 1 includes a body 2, a pivoted lever handle 3, an upper angular gripping slidable jaw 4, a lower angular gripping movable jaw 5, and a serrated thumb slide 6. The body 2 and the pivoted handle 3 may have plastic or

other composition hand grips 7 there about which permit comfortable control of the wrench 1. The pivoted lever handle 3, having a cam means 29, is attached to the body 2 by a pivot 8. The angular jaw 4 and the angular jaw 5 are oriented to securely grasp a nut 30 or bolt 31 on four surfaces of the work piece there between. The
5 wrench 1 may be constructed of drop-forged steel, stamped metal, powdered metal or other adequate strength materials.

The wrench 1 is usable to tighten or loosen nuts 30 and bolts 31 by moving the jaw 4 toward the jaw 5, thereby grasping the nut 30 or bolt 31 therein. The jaw 4 may be moved toward the jaw 5 by applying force to the jaw 4 on the serrated areas
10 9 or 10, by sliding the serrated thumb pull 6 or by cranking the handle 3 towards the body 2. Referring to Figs. 23 and 29, the handle 3 is held in a neutral position by a retaining spring 33. Cranking the handle 3 towards the body 2 causes the pivot 43 to move the link 45 in a downward motion causing the pivoted notched device 35, which is held in constant position against the outer side surface ratcheted teeth 48 of the
15 upper jaw 4 by the retaining spring 34, to move the jaw 4 to the desired position towards the jaw 5 to engage the nut 30 or bolt 31. Moving the jaw 4 towards the jaw 5 causes the notched dog 36, which is also held in constant position by the retaining spring 34, to engage the ratcheted teeth 48 on the jaw 4 thereby locking the jaw 4 in a positive position. Grasping the handle 3 toward the body 2, while the jaw 4 is in a
20 locked position, causes a cam lever action at the end portion 29 of the handle 3 against the jaw 5 thereby causing a positive gripping force against the nut 30 or the bolt 31. The nut 30 or bolt 31 may then be rotated clockwise or counterclockwise without inverting the wrench 1. Releasing the grasp on the handle 3 and moving the handle 3 away from the body 2 beyond the neutral position, allows the pivot pin 44 to
25 move the link 46 away from the body 2 and pulls the pivot pin 40 on the notched dog 36, which revolves on pivot pin 39, thus moving the notched dog 36 away from the ratcheted teeth 48 and simultaneously allows the pivot pin 43 to move the link 45

away from the body 2 and pulls the pivot pin 38 on the notched device 35 thus moving the notched device 35 away from the ratcheted teeth 48 thus allowing the compression spring 42 to return the jaw 4 to a fully open position.

The upper portion of jaws 4 and 5 are formed substantially as hex angular gripping surface areas 16, divided by circular grooves 15, to accommodate obtrusive irregularities on the outside corners of some hex angular nuts and bolts. The hex angular gripping surface areas 16 are arranged to grasp the angular surfaces of hex angular nuts 30 and bolts 31 as shown in Figs. 3, 30 and 31. The jaw 5 contains thereon alignment appendages 11 which allow the jaw 5 to move parallel in the alignment slits 12 thus allowing the cam action 29 to tighten the jaw 5 against the nut 30 or bolt 31 as shown in Fig. 3. The jaw 4 contains therein alignment slits 47, which ride along the alignment pins 14 to maintain alignment of the jaw 4 as it travels back and forth in the body pocket chamber 37 as the notched dog 36 and notched device 35 engage or disengage the ratcheted teeth 48 on the jaw 4 as shown in Figs. 23, 27 and 29. The lower body portion contains therein a body chamber 37 to house a coil spring 42 to maintain constant pressure against the lower portion of jaw 4 as shown in Figs. 23, 27 and 29.

The first preferred embodiment of the wrench 1 is fully described above. A second preferred embodiment of the wrench 1 for handling pipes 49 and pipe fittings 50 is shown in Figs. 2, 6, 7, 8, 17, 18, 25, 26, 28, 29, 30 and 31. The wrench 1 includes a body 2, a pivoted lever handle 3 and serrated gripping surfaces 21 on jaws 17 and 18 for grasping pipes 49 and pipe fittings 50. The wrench 1 is usable to tighten or loosen pipes 49 and pipe fittings 50 by moving the jaw 17 toward the jaw 18, thereby grasping the pipes 49 and pipe fittings 50 therein. The jaw 17 may be moved toward the jaw 18 by applying force to the jaw 17 on the serrated areas 19 or 20, by sliding the serrated thumb pull 6 or by cranking the handle 3 towards the body 2. When the jaws 17 and 18 engage the pipe 49 or pipe fitting 50, grasping the

handle 3 towards the body 2 causes the cam lever action at the end portion 29 thereby causing a positive tightening of the jaw 18 against the jaw 17 thus causing a positive gripping force on the pipe 49 or pipe fitting 50. Releasing the grasp on the handle 3, allows the wrench 1 to rotate on the pipe 49 or fitting 50 in a repetitive
5 manner without removing the wrench 1 from the work piece. Removing the pipes 49 and pipe fittings 50 is accomplished by inverting the wrench 1 on the pipes 49 and pipe fittings 50 and rotating the wrench 1 in a counterclockwise direction thus removing the work piece.

A third preferred embodiment of the wrench 1 for handling hex angular nuts is
10 shown in Figs. 9, 10, 11, 19, 20, 30 and 31. The wrench 1 includes a body 2, a pivoted lever handle 3, serrated angular gripping surfaces 24 on movable jaws 22 and 23 for grasping damaged or irregular shaped objects such as, but not limited to, nuts, bolts, pipes, fittings, rods and bars. The wrench 1 is usable to tighten or loosen work pieces by moving the jaw 22 toward the jaw 23, thereby grasping the work piece
15 therein. The jaw 22 may be moved toward the jaw 23 by applying force to the jaw 22 on the serrated areas 9 or 10, by sliding the serrated thumb pull 6, or by cranking the handle 3 towards the body 2. When the jaws 22 and 23 engage the work piece, grasping the lever handle 3 towards the body 2 causes a cam lever action at the end portion 29 against jaw 23 thereby causing a positive gripping force against the work
20 piece. The work piece may then be rotated clockwise or counterclockwise without inverting the wrench 1.

A fourth preferred embodiment of the wrench 1 for handling hex angular and square nuts as shown in Figs. 12, 13, 14, 21, 22, 30 and 31. The wrench 1 includes a body 2, a pivoted lever handle 3, opposing parallel aligned gripping surfaces 27 on
25 movable jaws 25 and 26 for grasping hex angular and square nuts. The wrench 1 is usable to tighten or loosen work pieces by moving the jaw 25 toward the jaw 26, thereby grasping the work piece therein. The jaw 25 may be moved toward the jaw

26 by applying force to the jaw 25 on the serrated area 28, by sliding the serrated thumb pull 6, or by cranking the handle 3 towards the body 2. When the jaws 25 and 26 engage the work piece, grasping the handle 3 towards the body 2 causes the cam lever action at the end portion 29 against jaw 26 thereby causing a positive gripping
5 force against the work piece. The work piece may then be rotated clockwise or counterclockwise without inverting the wrench 1.

Having described above the presently preferred embodiments of the present invention, it is to be understood that the invention may be otherwise embodied within the scope of the appended claims.

I claim:

1. A hand tool for handling a work piece, comprising:

a body portion having therein an adjustable upper angular gripping slidable jaw portion oriented to securely grasp a work piece therein, having provided thereon an
5 extended member containing an outer side surface of ratcheted teeth, and a spring actuated notched dog pivoted in a body pocket chamber to engage said ratcheted teeth and means for holding said upper angular gripping slidable jaw portion in a cooperative position;

an opposing lower angular gripping movable jaw portion in said body pocket chamber
10 thereof, oriented to securely grasp said work piece therein; and

a pivoted lever handle therein, having thereon a cam shaped end, held in a neutral position in said body pocket chamber by a retaining spring, when grasped and moved towards said body portion in a cranking motion, moves a connected link held in tension by a spring in said body pocket chamber, in a downward position causing a

15 second connected pivoted notched device in said body pocket chamber, held in constant position by a second retaining spring in said body pocket chamber, to engage said teeth of said upper angular gripping slidable jaw portion to move said upper angular gripping slidable jaw portion to a desired position towards said opposing lower angular gripping movable jaw portion thereby engaging said work
20 piece firmly between said opposing upper angular gripping slidable jaw and lower angular gripping slidable jaw; and

a cam action means on said lever handle cam shaped end, urges said lower angular gripping movable jaw portion to exert positive gripping force on said work piece therein; and

25 releasing said grasp on said lever handle and moving said lever handle away from said body portion beyond said neutral position, releases said spring actuated pivoted notched dog and said pivoted notch device away from said upper angular gripping

slidable jaw ratcheted teeth, allowing a compression spring means in said body pocket chamber to move said upper angular gripping slidable jaw portion away from said work piece and said opposing lower angular gripping movable jaw portion to a fully open position whereby allowing the operator of said hand tool means to
5 disengage said hand tool from said work piece quickly to engage other work pieces of various sizes.

2. The hand tool of claim 1 wherein said work pieces may be hex nuts having obtrusive irregularities at the intersections of its hex-angular surfaces, whereby a groove is adapted at the intersection of the inner surfaces of the said upper angular gripping slidable jaw portion and said lower angular gripping movable jaw portion to
10 receive said obtrusive irregularities of said work piece on said jaw gripping areas.

3. The hand tool of claim 1 wherein said adjustable upper angular gripping slidable jaw portion contains serrated areas on the top outer surfaces thereon means allowing a non-slipping action when applying force to move said adjustable upper angular gripping slidable jaw portion to apply force to move said adjustable upper angular
15 gripping slidable jaw portion towards said lower angular gripping movable jaw portion to engage said work piece firmly between said adjustable upper angular gripping slidable jaw portion and said lower angular gripping movable jaw portion.

4. The hand tool of claim 1 wherein said adjustable upper angular gripping slidable jaw portion contains thereon serrated thumb pulls means for applying force to move
20 said upper angular gripping slidable jaw portion towards said lower angular gripping movable jaw portion to engage said work piece firmly between said upper angular gripping slidable jaw portion and said lower angular gripping movable jaw portion.

5. The hand tool of claim 1 wherein said lower angular gripping movable jaw portion contains thereon alignment appendages means to allow said lower angular gripping
25 movable jaw portion to move parallel in alignment slits in said body allowing said cam action means to exert said positive gripping force on said work piece therein.

6. The hand tool of claim 1 wherein pivot pins means connect links to said pivoted lever handle, said notched dog and said pivoted notched device.
7. The hand tool of claim 1 wherein pivot pin means connect said pivoted lever handle to said body.
- 5 8. The hand tool of claim 1 wherein body alignment pins means allow said upper angular gripping slidable jaw portion to move parallel within alignment slits in said body portion.
9. The hand tool of claim 1 wherein said work pieces may be pipes and pipe fittings, whereby said upper gripping slidable jaw portion and opposing said lower gripping
- 10 movable jaw portion have serrated gripping surface means for handling round work pieces.
10. The hand tool of claim 1 wherein said work pieces may be damaged or irregular in shape, whereby said upper angular gripping slidable jaw portion and opposing said lower angular gripping movable jaw portion have serrated gripping surface means for
- 15 handling said work pieces.
11. The hand tool of claim 1 wherein said work pieces may be hex angular or square, whereby said upper slidable gripping jaw portion and opposing said lower movable gripping jaw portion have opposing smooth gripping surface means for handling said work pieces.

SLIDE LOCK WRENCH

ABSTRACT OF THE DISCLOSURE

A quick sliding adjustable locking wrench is disclosed having slidable and movable opposing jaw areas for engaging and gripping hex angular, round, square or irregular
5 work pieces of various sizes within its operating capacity. A quick release jaw mechanism, employed within the wrench, allows the operator of the wrench, rapid release of the jaws from the work piece, to continue on to the next work piece engagement. The jaw portions are additionally configured to firmly grip and lock on to the various work pieces.



SLIDE LOCK WRENCH

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to wrenches and, more particularly, to wrenches which
5 are usable to handle various types and sizes of hexagonal, square and round work pieces, particularly, nuts, bolts, pipes and pipe fittings.

2. Description of the Prior Art

A variety of hand tools have been utilized with the installation of nuts, bolts, pipes and pipe fittings. Wrench-type and plier-type hand tools are commonly used to
10 handle nuts, bolts, pipes and pipe fittings. See, for example, the tools shown in United States Patents Nos. 994,070 ; 1,027,203 ; 1,199,806 ; 2,592,927 ; 3,968,708 ; 3,955,450 ; 2,882,774 ; 993,504 ; 1,586,513 ; 4,616,536 ; and 1,396,576.

However, the use of these prior art tools to install or remove nuts, bolts, pipes and pipe fittings is disadvantageous for numerous reasons. First, the opposing jaw
15 areas allow a loose application at only two surfaces of the nuts and bolts of various sizes and shapes. In addition, these tools do not provide a uniform holding grip on the nuts or bolts. Further, these tools require a laborious task of repetitious mechanical adjustment and employing the use of various thumb and finger type devices to move the jaws of the tools to encompass the nuts and bolts. The same
20 laborious task of repetitious mechanical adjustment is required to open the jaws to receive the nuts and bolts of various sizes and shapes. In the installation or removal of pipes and pipe fittings, the tools presently in use also require a laborious task of repetitious mechanical adjustment, employing the use of various thumb and finger type devices, to move the jaws of the tools to grasp the various sizes of pipes and
25 pipe fittings. The same laborious task of repetitious mechanical adjustment is also required to open the jaws to receive the pipes and pipe fittings of various sizes and shapes.

Accordingly, it is the object of the present invention to provide wrenches for handling nuts, bolts, pipes and pipe fittings, which can be used to tighten or loosen the nuts, bolts, pipes and pipe fittings, with a uniform holding grip, without the laborious task of repetitious mechanical adjustment. It is another object of the invention to provide wrenches which can be easily used in a confined environment without damage to the nuts, bolts, pipes and pipe fittings themselves.

SUMMARY OF THE INVENTION

The present invention provides a wrench hand tool for the installation and removal of nuts, bolts, pipes, pipe fittings, rods and bars, with a uniform positive gripping action, without the laborious task of a repetitious mechanical adjustment as required by the wrench-type and plier-type hand tools of prior art.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of the wrench according to the present invention;

Fig. 2 is a perspective view of a second embodiment of the wrench according to the present invention;

Fig. 3 is a front view of the wrench shown in Fig. 1 grasping a hexagon shaped nut;

Fig. 4 is a right side view of the wrench shown in Fig. 3;

Fig. 5 is a left side view of the wrench shown in Fig. 3;

Fig. 6 is a front view of the wrench as shown in Fig. 2 grasping a circular object;

Fig. 7 is a right side view of the wrench shown in Fig. 6;

Fig. 8 is a left side view of the wrench shown in Fig. 6;

Fig. 9 is a front view of a third embodiment of the wrench, grasping a hexagon shaped nut, according to the present invention;

Fig. 10 is a right side view of the wrench shown in Fig. 9;

Fig. 11 is a left side view of the wrench shown in Fig. 9;

Fig. 12 is a front view of a fourth embodiment of the wrench, grasping a hexagon shaped nut, according to the present invention;

Fig. 13 is a right side view of the wrench shown in Fig. 12;

Fig. 14 is a left side view of the wrench shown in Fig. 12;

5 Fig. 15 is a top view of the wrench shown in Fig. 3;

Fig. 16 is a bottom view of the wrench shown in Fig. 3;

Fig. 17 is a top view of the wrench shown in Fig. 6;

Fig. 18 is a bottom view of the wrench shown in Fig. 6;

Fig. 19 is a top view of the wrench shown in Fig. 9;

10 Fig. 20 is a bottom view of the wrench shown in Fig. 9;

Fig. 21 is a top view of the wrench shown in Fig. 12;

Fig. 22 is a bottom view of the wrench shown in Fig. 12;

Fig. 23 is a sectional view of Fig. 24;

Fig. 24 is a left side view of Fig. 23;

15 Fig. 25 is a sectional view of Fig. 26;

Fig. 26 is a left side view of Fig. 25;

Fig. 27 is a sectional view of Fig. 3;

Fig. 28 is a sectional view of Fig. 6;

Fig. 29 is an enlarged view of Fig. 27 and Fig. 28;

20 Fig. 30 displays hexagon shaped nuts and pipe fittings of several sizes;

Fig. 31 displays bolts and pipes of several sizes.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to Figs. {1-31}, there is shown a wrench {1} for handling hex angular nuts {30} and hex angular bolts {31}, as shown in Figs. 1, 3, 4, 5, 15, 16, 23, 24, 27, 29, 30 and 31. The wrench {1} includes a body {2}, a pivoted lever handle {3}, an upper angular gripping {movable} jaw {4}, a lower angular gripping movable jaw {5}, and a serrated thumb slide {6}. The body {2} and the pivoted handle {3} may have plastic or other composition hand grips {7} there about which permit comfortable control of the wrench (). The pivoted lever handle {3}, having a cam means {29}, is attached to the body {2} by a pivot {8}. The angular jaw {4} and the angular jaw {5} are oriented to securely grasp a nut {30} or bolt {31} on four surfaces of the {workpiece} there between. The wrench {1} may be constructed of drop-forged steel, stamped metal, powdered metal or other adequate strength materials.

The wrench () is usable to tighten or loosen nuts {30} and bolts {31} by moving the jaw {4} toward the jaw {5}, thereby grasping the nut {30} or bolt {31} therein. The jaw {4} may be moved toward the jaw {5} by applying force to the jaw {4} on the serrated areas {9} or {10}, by sliding the serrated thumb pull {6} or by cranking the handle {3} towards the body {2}. Referring to Figs. 23 and 29, the handle {3} is held in a neutral position by a retaining spring {33}. Cranking the handle {3} towards the body {2} causes the pivot {43} to move the link {45} in a downward motion causing the pivoted notched device {35}, which is held in constant position against the outer side surface {racheted} teeth {48} of the upper jaw {4} by the retaining spring {34}, to move the jaw {4} to the desired position towards the jaw 5 to engage the nut {30} or bolt {31}. Moving the jaw {4} towards the jaw {5} causes the notched dog {36}, which is also held in constant position by the retaining spring {34}, to engage the {ratchet} teeth {48} on the jaw {4} thereby locking the jaw {4} in a positive position. Grasping the handle {3} toward the body {2}, while the jaw {4} is in a locked position, causes a cam lever action at the end portion {29} of the handle {3} against the jaw {5} thereby

causing a positive gripping force against the nut {30} or the bolt {31}. The nut {30} or bolt {31} may then be rotated clockwise or counterclockwise without inverting the wrench (). Releasing the grasp on the handle {3} and moving the handle {3} away from the body {2} beyond the neutral position, allows the pivot pin {44} to move the
5 link {46} away from the body {2} and pulls the pivot pin {40} on the notched dog {36}, which revolves on pivot pin {39}, thus moving the notched dog {36} away from the {notches} {48} and simultaneously allows the pivot pin {43} to move the link {45} away from the body {2} and pulls the pivot pin {38} on the notched device {35} thus moving the notched device {35} away from the {notches} {48} thus allowing the compression
10 spring {42} to return the jaw {4} to a fully open position.

The upper portion of jaws {4} and {5} are formed substantially as hex angular gripping surface areas {16}, divided by circular grooves {15}, to accommodate obtrusive irregularities on the outside corners of some hex angular nuts and bolts. The hex angular gripping surface areas {16} are arranged to grasp the angular
15 surfaces of hex angular nuts {30} and bolts {31} as shown in Figs. 3, 30 and 31. The jaw {5} contains thereon alignment appendages {11} which allows the jaw {5} to move {laterally} in the alignment slits {12} thus allowing the cam action {29} to tighten the jaw {5} against the nut {30} or bolt {31} as shown in Fig. 3. The jaw {4} contains therein alignment slits {47}, which ride along the alignment pins {14} to maintain
20 alignment of the jaw {4} as it travels back and forth in the body pocket chamber {37} as {the dog} {36} and notched device {35} engage or disengage the {ratchet} teeth {48} on the jaw {4} as shown in Figs. 23, 27 and 29. The lower body portion contains therein a body chamber {37} to house a coil spring {42} to maintain constant pressure against the lower portion of jaw {4} as shown in Figs. 23, 27 and 29.

25 The first preferred embodiment of the wrench () is fully described above. A second preferred embodiment of the wrench {1} for handling pipes {49} and pipe fittings {50} is shown in Figs. 2, 6, 7, 8, 17, 18, 25, 26, 28 [and] 29, 30 and 31. The

wrench {1} includes a body {2}, a pivoted lever handle {3} and serrated gripping surfaces {21} on jaws {17} and {18} for grasping pipes {49} and pipe fittings {50}. The wrench () is usable to tighten or loosen pipes {49} and pipe fittings {50} by moving the jaw {17} toward the jaw {18}, thereby grasping the pipes {49} and pipe fittings {50} therein. The jaw {17} may be moved toward the jaw {18} by applying force to the jaw {17} on the serrated areas {19} or {20}, by sliding the serrated thumb pull {6} or by cranking the handle {3} towards the body {2}. When the jaws {17} and {18} engage the pipe {49} or pipe fitting {50}, grasping the handle {3} towards the body {2} causes the cam lever action at the end portion {29} thereby causing a positive tightening of the jaw {18} against the jaw {17} thus causing a positive gripping force on the pipe {49} or pipe fitting {50}. Releasing the grasp on the handle 3, allows the wrench () to rotate on the pipe {49} or fitting {50} in a repetitive manner without removing the wrench () from the {workpiece}. Removing the pipes {49} and pipe fittings {50} is accomplished by inverting the wrench () on the pipes {49} and pipe fittings {50} and rotating the wrench () in a counterclockwise direction thus removing the {workpiece}.

A third preferred embodiment of the wrench {1} for handling hex angular nuts is shown in Figs. 9, 10, 11, 19, 20, 30 and 31. The wrench () includes a body {2}, a pivoted lever handle {3}, serrated angular gripping surfaces {24} on movable jaws {22} and {23} for grasping damaged or irregular shaped objects such as, but not limited to, nuts, bolts, pipes, fittings, rods and bars. The wrench () is usable to tighten or loosen {workpieces} by moving the jaw {22} toward the jaw {23}, thereby grasping the {workpiece} therein. The jaw {22} may be moved toward the jaw {23} by applying force to the jaw {22} on the serrated areas {9} or {10}, by sliding the serrated thumb pull {6}, or by cranking the handle {3} towards the body {2}. When the jaws {22} and {23} engage the {workpiece}, grasping the lever handle {3} towards the body {2} causes a cam lever action at the end portion {29} against jaw {24} thereby causing a positive gripping force against the {workpiece}. The {workpiece} may then be rotated

clockwise or counterclockwise without inverting the wrench ().

A fourth preferred embodiment of the wrench {1} for handling hex angular and square nuts as shown in Figs. 12, 13, 14, 21, 22, 30 and 31. The wrench {1} includes a body {2}, a pivoted lever handle {3}, opposing parallel aligned (flat) gripping

5 surfaces {27} on movable jaws {25} and {26} for grasping hex angular and square nuts. The wrench () is usable to tighten or loosen {workpieces} by moving the jaw {25} toward the jaw {26}, thereby grasping the {workpiece} therein. The jaw {25} may be moved toward the jaw {26} by applying force to the jaw {25} on the serrated area {28}, by sliding the serrated thumb pull {6}, or by cranking the handle {3} towards the
10 body {2}. When the jaws {25} and {26} engage the {workpiece}, grasping the handle {3} towards the body {2} causes the cam lever action at the end portion {29} against jaw {26} thereby causing a positive gripping force against the workpiece. The {workpiece} may then be rotated clockwise or counterclockwise without inverting the wrench ().

15 Having described above the presently preferred embodiments of the present invention, it is to be understood that the invention may be otherwise embodied within the scope of the appended claims.

I claim:

- {1}. A hand tool for handling a work piece, comprising: { } a body portion having therein an adjustable upper {angular slidable} jaw portion oriented to securely grasp a {workpiece} therein, having provided thereon an extended member containing an
- 5 outer side surface of ratcheted teeth, and a spring actuated notched dog pivoted in a {body chamber} to engage said ratcheted teeth and means for holding said upper {angular slidable} jaw portion in a cooperative position;
- an opposing lower {angular movable} jaw portion in said {body thereof}, oriented to securely grasp said {workpiece} therein; and
- 10 a pivoted lever handle therein, having thereon a cam shaped end, held in a neutral position in said {body chamber} by a retaining spring, when grasped and moved towards said {body in} a cranking motion, moves a connected link held in tension by a spring in said {body chamber}, in a downward position causing a second connected pivoted notched device in said body chamber, held in constant position by a second
- 15 retaining spring in said {body chamber}, to engage said teeth of said upper {angular slidable} jaw portion to move said upper {angular slidable} jaw portion to a desired position towards said opposing lower {angular movable} jaw portion thereby engaging said {workpiece} firmly between said opposing upper {and lower jaws}; and
- [said] cam action means on said lever handle cam shaped end, urges said lower
- 20 {angular movable} jaw portion to exert positive gripping force on said {workpiece} therein; and { } releasing said grasp on said lever handle and moving said lever handle away from said body beyond said neutral position, releases said spring actuated pivoted notched dog and said pivoted notch device away from said upper {angular slidable} jaw {notches} allowing a compression spring means in said {body
- 25 chamber} to move said upper {angular slidable} jaw portion away from said {workpiece} and said opposing lower {angular movable} jaw portion to a fully open position whereby allowing the operator of said hand tool means to disengage said

hand tool from said {workpiece} quickly to engage other {workpieces} of various sizes.

{2}. The hand tool of claim 1 wherein said {workpieces} may be hex nuts having obtrusive irregularities at the intersections of its hex-angular surfaces, whereby a
5 groove is adapted at the intersection of the inner surfaces of the said upper {angular slidable} jaw portion and said lower {angular movable} jaw portion to receive said obtrusive irregularities of said {workpiece} on said jaw gripping areas.

{3}. The hand tool of claim 1 wherein said adjustable upper {angular slidable} jaw portion {contains thereon serrated areas on the outer surfaces means to apply force
10 to move said upper angular slidable jaw portion towards said lower angular movable jaw portion to engage said workpiece firmly between said upper and lower jaws}.

{4}. The hand tool of claim 1 wherein said adjustable upper {angular slidable} jaw portion contains thereon serrated thumb pulls means for applying force to move said upper {angular slidable} jaw portion towards said lower {angular movable} jaw portion
15 to engage said {workpiece} firmly between {said upper and lower jaws.}

{5}. The hand tool of claim 1 wherein said lower {angular movable} jaw portion contains thereon alignment appendages means to allow said lower {angular movable} jaw portion to move {laterally} in alignment slits in said body allowing said cam action means to exert said positive gripping force on said {workpiece} therein.

20 {6}. The hand tool of claim 1 wherein pivot pins means connect {said} links to said pivoted lever handle, said notched dog and {said notched} device.

{7}. The hand tool of claim 1 wherein pivot pin means connect said pivoted lever handle to said body.

{8}. The hand tool of claim 1 wherein {body pins} means allow said upper {angular
25 slidable} jaw portion to move {laterally with alignment slits therein}.

{9}. The hand tool of claim 1 wherein said {workpieces} may be pipes and pipe fittings, whereby said {upper jaw} portion and opposing said lower {movable jaw}

portion have slanted serrated gripping surface means for handling round
{workpieces}.

{10}. The hand tool of claim 1 wherein said {workpieces} may be damaged or
irregular in shape, whereby said upper {angular slidable} jaw portion and opposing
5 said lower {angular movable} jaw portion have serrated gripping surface means for
handling said {workpieces}.

{11}. The hand tool of claim 1 wherein said {workpieces} may be hex angular or
square, whereby said upper {slidable jaw} portion and opposing said lower {movable
jaw} portion {have flat} gripping surface means for handling said {workpieces}.

SLIDE LOCK WRENCH

ABSTRACT OF THE DISCLOSURE

A quick sliding adjustable locking wrench is disclosed having slidable and movable opposing jaw areas for engaging and gripping hex angular, round, square or irregular {work pieces} of various sizes within its operating capacity. A quick release jaw mechanism, employed within the wrench, allows the operator of the wrench, rapid release of the jaws from the {workpiece}, to continue on to the next {workpiece} engagement. The jaw portions are additionally configured to firmly grip and lock on to the various {work pieces}.



David S. Gilbert, Jr.

April 10, 2003

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OFFICE OF PETITIONS

James G. Smith
Patent Examiner
C/O Assistant Commissioner of Patents
Washington, District of Columbia 20231

Re: Application No. 09/809/709

Filing Date 03/15/2001
First Named Inventor: David S. Gilbert, Jr.
Confirmation No. 4506

Dear Mr. Smith:

Enclosed please find "clean pages" 1 through 11 and "marked up" pages 1 through 11 of my patent application 09/809/709 corrected per your office communication dated 12/13/2002. Your records should show a one month extension of time was granted based on my request and the check that I forwarded to your office.

Because of my serious health problems these past 11 months, I have been receiving extensive radiology and chemotherapy under my Doctor's care at Allegheny General Hospital in Pittsburgh, and because of the pain and side effects I have been unable to arrange a personal interview with you to discuss the rejected items in your office action as well as the two previous office actions. Thankfully my cancer is now in remission, and I will now be able to travel to your office to discuss any corrections that may be required after your review of the enclosed documents, or if necessary changes are required, we may be able to discuss them by fax or by telephone.

Please be advised that I have used the designations [deletions], (added matter) and {amended once} for changes on the "marked up" pages.

Hopefully, I have made all the proper changes in the office action to your satisfaction and you will approve my patent as corrected. Additionally, I would appreciate any suggestion that you feel will make my claims stronger for my patent protection.

Very truly yours,

David S. Gilbert, Jr.
David S. Gilbert, Jr.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,709	03/15/2001	David S. Gilbert JR.		4506

7590 12/15/2003
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EXAMINER

SMITH, JAMES G

ART UNIT PAPER NUMBER

3723

DATE MAILED: 12/15/2003

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OFFICE OF PETITIONS

Please find below and/or attached an Office communication concerning this application or proceeding.



Copy

Notice of Abandonment

Application No.

09/809,709

Examiner

James G. Smith

Applicant(s)

GILBERT, DAVID S.

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address

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OFFICE OF PETITIONS

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on 13 December 2002.
 - (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
 - (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection.
(A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
 - (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
 - (d) ☒ No reply has been received.
2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
 - (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
 - (b) ☐ The submitted fee of \$_____ is insufficient. A balance of \$_____ is due.
The issue fee required by 37 CFR 1.18 is \$_____. The publication fee, if required by 37 CFR 1.18(d), is \$_____.
 - (c) ☐ The issue fee and publication fee, if applicable, has not been received.
3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
 - (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
 - (b) ☐ No corrected drawings have been received.
4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
6. ☐ The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.
7. ☐ The reason(s) below:

James G. Smith
Primary Examiner
Art Unit: 3723

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.

Petition to Revive CFR1.137(a) for David S. Gilbert, Jr. for Slide Lock Wrench consisting of "clear pages" 1 through 11, "marked up" pages 1 through 11 of patent application 09/809/709, copy of letter to James G. Smith dated 4/10/2003 and a copy of the US Express Mail receipt dated 4/09/2003.

